

No.



8100143

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Delta & Pine Land Company

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (U.S.C. 2321 ET SEQ.), AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

COTTON

'Deltapine Acala 90'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 17th day of June in the year of our Lord one thousand nine hundred and eighty-two.

Attest:

Kenneth H. Evans
Acting
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R. Block
Secretary of Agriculture

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.

13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.

13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.

13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.

13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.

14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)

15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

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APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY 7124-299-33-41		1b. VARIETY NAME DELTAPINE ACALA 90		FOR OFFICIAL USE ONLY PV NUMBER 8100143	
2. KIND NAME COTTON		3. GENUS AND SPECIES NAME GOSSYPIMUM HIRSUTUM		FILING DATE 7/14/81	TIME 9:30 A.M. P.M.
4. FAMILY NAME (BOTANICAL) MALVACEAE		5. DATE OF DETERMINATION OCTOBER 15, 1977		FEE RECEIVED \$ 500.00 \$ 250.00	DATE 7/14/81 5/24/82
6. NAME OF APPLICANT(S) DELTA & PINE LAND CO.		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) POST OFFICE BOX 77 MEMPHIS, TENNESSEE 38101		8. TELEPHONE AREA CODE AND NUMBER (602) 836-2739	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) CORPORATION		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION DELAWARE		11. DATE OF INCORPORATION 10/19/78	
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: MR. ELMER L. GILBERT DELTA & PINE LAND CO. POST OFFICE BOX 1006 CASA GRANDE, ARIZONA 85222					

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☐ 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☐ YES ☒ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☒ YES ☐ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? ☐ FOUNDATION ☐ REGISTERED ☒ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☒ YES ☐ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

X 6/9/81
(DATE)

X Elmer L. Gilbert
(SIGNATURE OF APPLICANT)

5/21/81
(DATE)

Roger S. Ward
(SIGNATURE OF APPLICANT)

EXHIBIT A

DELTA & PINE LAND COMPANY'S APPLICATION FOR DELTAPINE ACALA 90Origin and Breeding History

Deltapine Acala 90 has been developed through pedigree selection from a cross of two experimental strains of Delta & Pine Land Co.: 6582-64-73-810 X 6516-647-73-70B. The 6582 line derived from a cross of an University of Arizona Acala strain-AZ 5909- with Deltapine 16. The 6516 line derived from a cross of Deltapine 16 with the John Cotton Polycross of Acala and long-staple origin from the New Mexico State University Experiment Station.

F₁ seed of the 7124 cross was increased in Iguala, Mexico during the winter of 1971-72. F₂ plants were selected at Scott, Mississippi in the summer of 1972. Reselection continued through the F₅ generation (1973-75) at Casa Grande, Arizona.

Deltapine Acala 90 has been evaluated for four years in replicated tests in Arizona and the Imperial Valley of California (1977, 1978, 1979 and 1980) with Deltapine 61 as the Check. Deltapine Acala 90 has been evaluated for two years in the San Joaquin Valley of California (1979 and 1980) with Acala SJ 2 as the Check. Deltapine Acala was tested with pedigree numbers 7124-299-33-41 or 7124-299.

Deltapine Acala 90 has proved to be uniform and genetically homogeneous.

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DELTA & PINE LAND COMPANY'S APPLICATION FOR DELTAPINE ACALA 90Novelty Statement

In Arizona and the Imperial Valley, Deltapine Acala 90 most nearly resembles Deltapine 61. In the San Joaquin Valley of California, Deltapine Acala 90 most nearly resembles Acala SJ 2. Deltapine Acala 90 is novel due to (1) its plant structure and (2) its agronomic properties as signified by data collected over 4 years in Arizona and the Imperial Valley (1977-1980) and over two years (1979,1980) in the San Joaquin Valley.

1. PLANT STRUCTURE (Tables from Exhibit C)

	Acala SJ 2	Deltapine 61	Deltapine Acala 90
Plant Height, cm.	109.8	106.5 (-)*	111.3
Widest Leaf Width, cm.	14.8 (+)*	15.2 (+)	12.4
Cm. to 1st Fruit Branch	14.1 (-)	10.6 (-)	17.5
Node to 1st Fruit Branch	5.9	5.1 (-)	6.6
Seed Index, g./100 seed	11.4 (+)	10.6	10.6
Seed per Boll	30.0	33.4 (+)	31.0
Diameter of Boll, cm	3.7 (+)	3.3	3.3

2. AGRONOMIC PROPERTIES (Tables B1 and B2)

	ARIZONA-Table B1		SAN JOAQUIN-Table B2	
	Deltapine 61	Deltapine Acala 90	Acala SJ 2	Deltapine Acala 90
Lint yield, Lb/acre	1770	1802	1091	1098
Lint %	33.7	34.3	34.8 (-)	36.2
Fiber Strength, g/tex	23.7 (-)	26.2	27.0	27.4
2.5% Span, inches	1.10	1.11	1.12	1.11
Length Uniformity	46.8	47.1	47.3	46.4
Micronaire	4.7	4.9	4.2	4.2
Vert. Wilt Infection, %	-	-	54 (+)	37

* -- Indicates less than (-) or greater than (+) Deltapine Acala 90 in a statistically or practically significant sense.

Deltapine Acala 90 compared with Deltapine 61 is novel due to its taller plants, narrower leaf width, longer distance to 1st fruiting branch, more nodes to 1st fruiting branch, fewer seeds per boll, and greater fiber strength.

Deltapine Acala 90 compared to Acala SJ 2 is novel due to its narrower leaf width, longer distance to 1st fruiting branch, lighter green leaf color (see Exhibit C, #9), lower seed index, smaller boll diameter, higher lint %, and less Verticillium wilt infection.

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ACB VARIETY TEST - 1980 BOLL SIZE - GRAMS PER BOLL

	BUTTON WILLOW	WASCO	EARLI MART	WOOD VILLE	HAN FORD	MEN DOTA	KERMAN	MADERA	MEAN
SJ-2	6.8	7.9	5.9	5.8	6.4	6.7	6.5	7.4	6.7
SJ-5	6.7	7.8	6.8	6.5	6.6	6.1	7.0	6.8	6.8
T 6310	6.9	6.4	7.3	6.4	7.0	6.2	6.9	7.0	6.8
CPCSD 1	6.1	7.0	5.6	6.2	6.5	6.7	6.4	6.4	6.4
DP 7124-299	4.3*	4.8*	4.8	4.7*	4.8*	4.5*	5.2*	5.2*	4.8*
AVERAGE	6.1	6.8	6.1	5.9	6.2	6.1	6.4	6.6	6.3
LSD .05	1.4	1.4	NS	0.9	0.6	0.4	1.0	0.9	0.4
%CV	8.2	7.4	11.0	5.6	3.2	2.3	5.7	5.0	6.6

ACB VARIETY TEST - 1980 SEED INDEX

	BUTTON WILLOW	WASCO	EARLI MART	WOOD VILLE	HAN FORD	MEN DOTA	KERMAN	MADERA	MEAN
SJ-2	13.8	13.7	12.4	11.2	11.8	12.9	13.3	12.9	12.8
SJ-5	13.1	11.9	12.3	11.6	12.0	11.9	12.2	11.9	12.1
T 6310	12.7	11.0	12.2	10.4	11.1	13.3	13.1	12.0	12.0
CPCSD 1	11.5	11.7	9.8	11.1	12.2	11.1	11.4	10.7	11.2
DP 7124-299	9.5	9.1*	8.9	9.1	9.9	9.1*	9.9*	10.1*	9.5*
AVERAGE	12.1	11.5	11.1	10.7	11.4	11.7	12.0	11.5	11.5
LSD .05	NS	0.8	NS	NS	NS	0.4	0.6	1.0	0.6
%CV	9.5	2.5	12.0	6.4	8.2	1.1	1.8	3.1	6.7

* - significant at .05 Level.

Table B1. Comparison of Deltapine Acids 90 (7124-299) and Deltapine 61 in D+PL Test Plots, 1977-1980, Casa Grande, AZ; Bhowley, CA.

	Arizona			Imperial Valley, CA.			7 site Average	% of DP 61
	1977	1978	1979	1980	1978	1979	1980	
LINT YIELD (lb/ac)								
DP ACALA 90	1823	1777	1458	1746	2009	1921	1880	101.8
DP 61	1733	1577	1527	1566	1991	2003	1996	-
LINT 2a								
DP ACALA 90	33.8	34.2	35.1	34.6	33.7	35.4	33.2	101.8
DP 61	33.8	32.1	34.8	34.8	32.7	34.4	33.0	-
STRENGTH g/ton								
DP ACALA 90	27.2	26.2	24.3	26.0	25.5	26.3	27.8	110.5
DP 61	24.9	24.7	24.0	21.3	24.1	22.5	24.2	-
Difference in strength →	+2.3	+1.5	+0.3	+4.7	+1.4	+3.8	+3.6	+2.5

$$S_d^2 = \frac{59.08 - 44.25}{7(6)} = \frac{14.83}{42} = .353$$

$$S_d = .5942$$

$$t = \frac{2.5}{.5942} = 4.207^{**}$$

statistical paired comparison for strength:

** - Significant difference at .01 Level.

OBJECTIVE DESCRIPTION OF VARIETY
COTTON (GOSSYPIMUM SPP.)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S) Delta + Pine Land Co.	FOR OFFICIAL USE ONLY
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) P.O. Box 77 Memphis, Tennessee 38101	PVPO NUMBER 8100143
	VARIETY NAME OR TEMPORARY DESIGNATION Deltapine Acala 90 <i>88 11/12/81</i>

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g., or) when number is either 99 or less or 9 or less.

1. SPECIES:

☒ 1 = GOSSYPIMUM HIRSUTUM 2 = GOSSYPIMUM BARBADENSE

2. AREA(S) OF ADAPTION (0 = Not Tested, 1 = Not Adapted, 2 = Adapted):

EASTERN DELTA CENTRAL HIGH PLAINS EL PASO AREA
 WESTERN LOW HOT VALLEYS SAN JOAQUIN OTHER (Specify) _____

3. MATURITY (50% Open Boll): *Based on visual observation*

<input type="text" value="0"/> <input type="text" value="6"/> NO. OF DAYS EARLIER THAN <input type="text" value="8"/>	1 = COKER 310 2 = DELTAPINE 16 3 = STONEVILLE 213
<input type="text"/> NO. OF DAYS LATER THAN <input type="text"/>	4 = PAYMASTER 111 5 = ACALA 1517-70 6 = ACALA SJ-1
	7 = LANKART 57 8 = OTHER (Specify) Acala SJ2

4. PLANT HABIT:

1 = SPREADING 2 = INTERMEDIATE 3 = COMPACT 1 = FOLIAGE SPARSE 2 = DENSE
3 = OTHER (Specify) _____

5. PLANT HEIGHT: *Table C5*

<input type="text"/> CM. SHORTER THAN <input type="text"/>	1 = COKER 310 2 = DELTAPINE 16 3 = STONEVILLE 213
<input type="text" value="1"/> <input type="text" value="5"/> CM. TALLER THAN <input type="text" value="8"/>	4 = PAYMASTER 111 5 = ACALA 1517-70 6 = ACALA SJ-1
	7 = LANKART 57 8 = OTHER (Specify) Acala SJ2

6. MAIN STEM:

1 = LAX 2 = ASCENDING 3 = ERECT *Table C7* CM. TO FIRST FRUITING BRANCH *Table C8* NO. OF NODES TO FIRST FRUITING BRANCH (from cotyledonary node)

7. LEAF: *Table C6*

CM. WIDTH OF WIDEST LEAVES AT MATURITY 2 = SMOOTH LEAF (DELTAPINE SMOOTH LEAF) 3 = PUBESCENT (STONEVILLE 213)
4 = HEAVY PUBESCENCE (H₁ OR H₂) 5 = OTHER (Specify) _____

9. LEAF COLOR:

1 = VIRESCENT YELLOW 2 = LIGHT GREEN 3 = DARK GREEN (Acala-442) 4 = RED
5 = OTHER (Specify) _____

10. LEAF TYPE:

1 = NORMAL 2 = OKRA 3 = SUPER OKRA 4 = OTHER (Specify) _____

11. FLOWER:

1 = NECTARILESS 2 = NECTARIED
 Petals: 1 = CREAM 2 = YELLOW Pollen: 1 = CREAM 2 = YELLOW

12. FRUITING BRANCH TYPE:

1 = CLUSTER 2 = SHORT 3 = NORMAL 1 = DETERMINATE 2 = INDETERMINATE

13. GOSSYPOL CONDITION:

1 = GLANDLESS 2 = REDUCED GLANDS 3 = NORMAL GLANDS 1 = NORMAL BUD GOSSYPOL
4 = OTHER (Specify) _____ 2 = HIGH BUD GOSSYPOL

14. SEEDS: *Table C9*

± SEED INDEX (Fuzzy seed basis) Seed Fuzz: 1 = SPARSE (GREGG 35) 2 = MODERATE (DPL-15) 7
3 = HEAVY (ACALA SJ-1) 4 = OTHER (Specify) _____

FORM GR-470-8 (REVERSE)

15. BOLLS:

Locules: 1 = 3-4
 2 = 4-5

NO. SEEDS PER BOLL

LINT PERCENT

Breadth: 1 = BROADER AT BASE
 2 = BROADER AT MIDDLE

Type: 1 = STORMPROOF (WESTBURN 70)
 2 = STORM RESISTANT (LANKART 57)
 3 = OPEN (DELTAPINE 16)

Shape: 1 = LENGTH < WIDTH
 2 = LENGTH = WIDTH
 3 = LENGTH > WIDTH

16. BRACTEOLLES:

Breadth: 1 = LENGTH < WIDTH 2 = LENGTH = WIDTH 3 = LENGTH > WIDTH

Teeth: 1 = FINE 2 = COURSE

Teeth: 1 = 3-4 2 = 5-7 3 = 8-10
 4 = OTHER (Specify)

17. YIELD: Compared to— *Table B1*

PERCENT LESS THAN

PERCENT MORE THAN

1 = COKER 310 2 = DELTAPINE 16 3 = STONEVILLE 213
 4 = PAYMASTER 111 5 = ACALA 1517-70
 6 = ACALA SJ-1 7 = LANKART 57

18. FIBER LENGTH (Complete one or more of the following and give the means):

SPAN LENGTH 50%

SPAN LENGTH 2.5%

STAPLE LENGTH 32nd INCHES

UNIFORMITY RATIO (MEAN/U.H.M.)

UNIFORMITY INDEX (50% SPAN/2.5% SPAN)

U.H.M. LENGTH

19. FIBER STRENGTH AND ELONGATION:

1,000 P.S.I.

ELONGATION E₁

MICRONAIRE READING

YARN STRENGTH (Give test method)

STILOMETER T₁

20. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

VERTICILLIUM WILT

FUSARIUM WILT

ROOT KNOT NEMATODE

BACTERIAL BLIGHT (Race 1)

BACTERIAL BLIGHT (Race 2)

ASCOCHYTA BLIGHT

PHYMATOTRICHUM ROOT ROT

RHIZOCTONIA

ANTHRACNOSE

RUST

OTHER (Specify)

21. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

BOLL WEEVIL

APHID

FLEAHOPPER

LEAFWORM

FALL ARMYWORM

GRASSHOPPER

LYGUS

PINK BOLLWORM

STINKBUG

THRIP

CUTWORM

SPIDERMITTE

OTHER (Specify)

REFERENCES: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

- (1) Brown, Harry B., and J. O. Ware, 1958, Cotton, McGraw-Hill Book Company, Inc., New York.
- (2) Lewis, C. F., and H. H. Ramey, Jr., 1971, 1970 Regional Cotton Variety Tests, ARS 34-130, United States Department of Agriculture.

COLORS: Nickerson's or any recognized color fan may be used to determine flower color of the described variety.

ACB VARIETY TEST - 1980 GIN TURNOUT - FIRST PICK

	BUTTON WILLOW	WASCO	EARLI MART	WOOD VILLE	HAN FORD	MEN DOTA	KERMAN	MADERA	MEAN
SJ-2	31.1	32.4	30.5	31.5	31.2	31.0	32.2	31.1	31.4
SJ-5	32.5	33.1	32.3	33.6	32.9	33.2	33.9	33.6	33.1
T 6310	33.3	34.4	32.6	33.7	33.4	33.2	34.1	33.1	33.5
CPCSD 1	32.8	34.2	32.2	33.6	33.1	33.5	33.3	34.3	33.4
DP 7124-299	33.0*	34.0*	32.4*	32.8*	34.0*	32.7*	34.1*	32.8*	33.2*
AVERAGE	32.5	33.6	32.0	33.0	32.9	32.7	33.5	33.0	32.9
LSD .05	0.6	0.9	0.8	0.4	0.7	0.9	1.0	0.8	0.4
%CV	1.3	1.6	1.7	0.7	1.3	1.9	2.0	1.6	1.6

* - Significant at .05 Level

